

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An ink jet printhead, for the emission of droplets of ink on a print medium, comprising:

a sublayer of silicon,

a structural layer on top of said sublayer of silicon, and

a plurality of chambers and corresponding feeding ducts, each chamber containing at least one resistor, said structural layer having a plurality of ejector nozzles communicating with each of said chambers and arranged facing each of said resistors, wherein each of said chambers ~~is delimited by a~~ defines a flat bottom wall and an opposed dome-shaped upper wall, ~~the dome-shaped upper wall defining a perimeter continuously made of a substantially concave surface and~~ joined to said flat bottom wall ~~along a continuous perimetral line~~, the bottom wall comprising a protective layer.

2. (Previously Presented) The ink jet printhead according to claim 1, wherein said protective layer is made of a first layer of tantalum, facing the inside of said chamber, and deposited on top of a second isolating layer of silicon carbide and nitride in contact with said resistors.

3. (Currently Amended)) The ink jet printhead according to claim 2, wherein said first layer of tantalum extends substantially beyond the ~~perimetral line~~ perimeter of the dome-shaped upper wall and constitutes said bottom wall.

4. (Currently Amended) The ink jet printhead according to ~~any of the~~ claim 1, wherein said dome-shaped upper wall is joined uninterruptedly to the corresponding feeding duct, said bottom wall and said nozzle.

5. (Currently Amended) The ink jet printhead according to claim 1, wherein each of said chambers and corresponding feeding ducts has an inner shape representing a complementary impression of a sacrificial layer ~~(57)~~ obtained from a controlled and non-contained growth of a metal on a layer of gold ~~(36)~~, the layer of gold being on top of said layer of tantalum.

6. (Previously Presented) The ink jet printhead according to claim 5, wherein said structural layer covers the sacrificial layer completely.

7. (Previously Presented) The ink jet printhead according to claim 1, wherein the inner shape of each of said chambers, said feeding ducts and said nozzles represents a complementary impression from a sacrificial layer within obtained from a controlled and non-contained growth of a metal on a layer of gold, the layer of gold being on top of a layer of tantalum.

8. (Currently Amended) The ink jet printhead according to claim 7, wherein said structural layer ~~is made of~~ comprises a non-photosensitive epoxy or polyamide type, negative photoresist, applied on said sacrificial layer and completely covering said sacrificial layer ~~and on said cast, covering them completely.~~

9. (Previously Presented) The ink jet printhead according to claim 6, wherein said sacrificial layer and said layer of gold are removed by means of an acid bath, to create said chambers and said feeding ducts connected to them.

10. (Previously Presented) The ink jet printhead according to claim 5, wherein said sacrificial layer is made of electrolytic copper.

11. (Previously Presented) The ink jet printhead according to claim 5, wherein said sacrificial layer is made of nickel.

12. (Currently Amended) A manufacturing process ~~[[of]]~~ for an ink jet printhead made on a wafer, divided into a plurality of die, each die comprising a sublayer of crystalline silicon, a plurality of thermal actuating elements arranged on said sublayer of crystalline silicon, and a protective layer including a layer of tantalum covered by a layer of gold, the process comprising ~~the following steps:~~

- a) chemically activating said layer of gold using a galvanic bath;
- b) performing an electrodeposition of a metal on said layer of gold to make a sacrificial layer, obtained from a controlled and non-contained growth parallel and perpendicular to said layer of gold;
- c) applying a photosensitive structural layer entirely covering said sacrificial layer;
- d) photoetching a plurality of nozzles through said structural layer;

e) removing said sacrificial layer by chemical etching with an acid bath to produce a plurality of chambers and corresponding feeding ducts, wherein each of the chambers ~~being delimited internally by~~ defines a flat bottom wall, ~~and a concave upper surface joined uninterruptedly and an opposed dome-shaped upper wall, the dome-shaped upper wall defining a perimeter continuously joined~~ to the flat bottom wall, the flat bottom wall including a tantalum layer and the layer of gold, and the upper wall surface representing a complementary impression of said sacrificial layer.

13. (Previously Presented) The process according to claim 12, wherein step a) is preceded by the following step: f) etching said layer of gold to define a starting area of said electrodeposition.

14. (Previously Presented) A manufacturing process of an ink jet printhead made on a wafer divided into a plurality of die, each die comprising a sublayer of crystalline silicon, a plurality of thermal actuating elements arranged on said sublayer of crystalline silicon, and a protective layer including a layer of tantalum covered by a layer of gold, the process comprising the following steps:

- a) chemically activating said layer of gold using a galvanic bath;
- b) performing an electrodeposition of a metal on said layer of gold to make a sacrificial layer, obtained from a controlled and non-contained growth parallel and perpendicular to said layer of gold;
- c) applying a layer of positive photoresist on top of said sacrificial layer;

- d) exposing and developing the positive photoresist to create holes with inward flaring;
- e) removing photoresist residue inside said holes;
- f) microetching and activating an oxidized portion of the surface of said sacrificial layer, in correspondence with said holes;
- g) reactivating electrochemical growth of electrolytic copper directly on the sacrificial layer within the holes to create a cast for said nozzles;
- h) removing said layer of positive photoresist;
- i) applying a structural layer of non-photosensitive epoxy or polyamide resin over the sacrificial layer and the cast;
- j) performing planarization of an upper surface of said non-photosensitive structural layer to uncover an upper dome of said cast of copper; and
- k) removing said sacrificial layer by chemical etching with an acid bath to produce a plurality of chambers and corresponding feeding ducts, each of the chambers being delimited internally by a flat bottom wall, and a concave upper surface joined uninterruptedly to the bottom wall, the bottom wall including a tantalum layer and the layer of gold and the upper surface representing a complementary impression of said sacrificial layer.

15. (Previously Presented) The process according to claim 14, wherein said non-photosensitive structural layer is produced with a thickness between 25 and 60 μ m.

16. (Currently Amended) A manufacturing process of an ink jet printhead made on a wafer

divided into a plurality of die, each die comprising a sublayer of crystalline silicon, a plurality of thermal actuating elements arranged on said sublayer of crystalline silicon, and a protective layer including a layer of tantalum covered by a layer of gold, the process comprising the following steps:

- a) chemically activating said layer of gold using a galvanic bath;
- b) performing an electrodeposition of a metal on said layer of gold to make a sacrificial layer, obtained from a controlled and non-contained growth parallel and perpendicular to said layer of gold;
- c) applying a non-photosensitive structural layer covering the outer surface of said sacrificial layer; said non-photosensitive layer being made of a negative, epoxy or polyamide type resin;
- d) making a plurality of nozzles through said structural layer, using an excimer laser; and
- e) removing said sacrificial layer by chemical etching with an acid bath to produce a plurality of chambers and corresponding feeding ducts, wherein each of the chambers being delimited internally by defines a flat bottom wall, and a concave upper surface joined uninterruptedly to the bottom wall and an opposed dome-shaped upper wall, the dome-shaped upper wall defining a perimeter continuously joined to the flat bottom wall, the bottom wall including a tantalum layer and the layer of gold, and the upper surface representing a complementary impression of said sacrificial layer.

17. (Cancelled)